36 and 38 and over the upper surface of a transfer roller 40 which is partially submerged in the adhesive 42 within the glue pot 44. The transfer roller 40 applies a coating of adhesive to the lower surface of the ribbon, and the coating is controlled by a spreader bar 46 over which it runs above the pot 44. A pair of guide rollers 48 and 50 runs the lower surface of the ribbon firmly over the upper edge 52 of the spreader bar 46 so as to distribute the adhesive on the lower surface and remove any excess which may have been applied to that surface by the transfer roller 40. From that point the ribbon is directly wound upon the mandrel as one of the two upper plies which make up the core tube. In FIG. 5 it will be appreciated that the configuration of the parts is suitable for applying the adhesive to the ribbon 28. This same arrangement may be used to apply adhesive to the upper surface of the ribbon 30 by inverting the ribbon after it leaves the guide roller 50.

In the embodiment shown in FIG. 3 the mandrel 24 is not rotated but rather the three-ply core tube 10 defined by the ribbons 26, 28 and 30 is rotated as the tube grows to the right as viewed in FIG. 3. That is, as the tube rotates, the turns of each of the ribbons move to the right as additional turns of ribbon are deposited on the left as each of the ribbons is wound upon or about the mandrel. Rotation of the tube is achieved by the belt and pulley arrangement suggested at 54 just beyond the location where the ribbons 26, 28 and 30 are applied. The assembly 54 includes a pair of pulleys 56, one of which is ordinarily driven by a motor, and a belt 58 which has one run 60 looped about the roller on the mandrel and the other run 62 which passes above the roller directly from one pulley to the other. It is evident that when the pulleys 56 rotate in the direction suggested by their arrows, the belt 58 moves in the direction suggested by arrow 64. The belt 58 not only serves to rotate the tube but also serves to press each turn of the tube firmly in place.

As the roller core grows to the right as viewed in FIG. 3, it reaches the station 66 where the carrier ribbon 12 is applied to its surface. The carrier 12 preferably is made of kraft paper approximately 2¾" wide, and the carrier is precoated with adhesive both on its upper and lower surfaces before it is wound upon the roller. The adhesive coating on the lower surface of the carrier 12 secures the carrier to the roller core while the adhesive coating on its upper surface secures the fabric cover 14 to the roller.

In FIG. 4 a typical installation for the application of adhesive to the carrier 12 is shown. In that figure, a spindle 68 is shown to carry a large roll 70 of kraft paper, and the kraft paper is directed by guide rollers 72 and 74 into the glue pot 76 where the carrier is fully submerged into the adhesive 78. Emersion of the carrier is achieved by passing it below the roller 80 which itself lies below the level of the adhesive in the pot. The carrier 12 is subsequently guided about the roller 82 and between the combs 84 and 86 that spread the adhesive picked up by the carrier when submerged in the pot and form the adhesive into narrow ribs and channels as suggested in FIG. 6. It will be noted that in that figure the comb 84 forms the coating 22 of adhesive on the upper surface of the carrier 12 into closely spaced ribs 90 with valleys 88 between adjacent ribs. Precisely the same configuration is imparted to the coating 18 of adhesive on the lower surface of the carrier. The viscosity of the adhesive causes it to remain in the ribbed configuration created by the combs 84 and 86.

While some advantage is derived in providing this configuration to the coating 18, very substantial advantage is derived from applying this configuration to the coating 22 which adheres the fabric covering 14 to the roller. Tests indicate that when the adhesive coating 22 is not spread in the configuration shown, there is a marked tendency for the adhesive to be too heavily applied, which causes the adhesive to puddle and subsequently form bumps over the surface of the carrier which in turn reflect through the fabric covering. With the particular configuration shown for the coating 22 there is no excess of adhesive, and a smooth uniform bond is created between the fabric cover and the carrier. The coating 18 in turn provides a firm bond between the carrier and the core in the end that the fabric covering is secured in place with a smooth supporting base.

Continued rotation of the roll with the carrier imparted by the assembly 54 causes the carrier to effectively grow to the right as viewed in FIG. 3. At station 92 the fabric covering 14 is applied in a spiral configuration parallel to the carrier 12. Typically, the fabric ribbon 14 may be the same width as the carrier 12 that is, approximately 2¾", and it is wound upon the adhesive coating 22 with the edges of the fabric ribbon substantially abutting one another. It is important to avoid overlapping of the edges of the fabric from turn to turn, which would cause ridges to form in the fabric surface, and it is also important that the edges lie very close to one another to avoid the formation of any substantial gaps between adjacent turns. Because the fabric covering is applied adjacent the carrier, the adhesive coating 22 on the carrier is in a tacky state, and therefore the fabric adheres firmly to the carrier.

In FIG. 3 the fabric ribbon 14 is shown wound horizontally about the vertical spindle 94, and the fabric is turned 90° about the guide post 96 and placed in a horizontal plane in a position to be wound upon the roller. It is to be understood that the fabric ribbon may be stored in any convenient manner and fed to the station 92.

In accordance with the method thus far described, the fabric covered roller is "grown" in a continuous operation, and it is essential that the continuous roller be cut into usable lengths. In order to accomplish this, a rotary cutting blade 98 driven by motor 100 is shown positioned adjacent the roller beyond the station 92. By means not shown the blade may be moved across the path of the tube intermittently to cut the roller into selected lengths as it grows beyond the rotary blade 98.

It will be evident from the foregoing description that modifications may be made either in the roller or in the method of fabrication without departing from the spirit of this invention. The particular types of adhesive used may vary widely and it is only essential that the adhesive coating 22 be such that it will not dissolve in the solvents and spirits found in water base and oil base paints. A typical acceptable adhesive is made by Morningstar Paisley, Inc. identified as Paint Roller Adhesive 72–7247. The particular character of the fabric itself may vary widely also.

Because numerous modifications may be made of this invention without departing from its spirit, it is not intended to limit the breadth of this invention to the specific embodiments illustrated and described. Rather, it is intended that the scope be determined by the appended claims and their equivalents.

What is claimed is:

1. A paint roller comprising
a triple-ply cardboard tube,
a paper carrier helically wound about and cemented to the tube,
a coating of adhesive carried on the outer surface of the carrier and shaped into narrow parallel ribs running helically about the roll,
and a high pile fabric helically wound on and adhered to the carrier.

2. A paint roller as defined in claim 1 further characterized by
said carrier being a kraft paper.

3. A paint roller as defined in claim 1 further characterized by
said high pile fabric being a rayon fabric.